ASSISTIVE ERGONOMIC DESKTOP SYSTEM AND MODULAR COMPONENTS

INCORPORATION BY REFERENCE

[0001] This application claims the benefit of U.S. Provisional Application No. 60/460,958, titled "Write Right Desktop Adaptor System", filed on April 8, 2003, and U.S. Provisional Application No. 60/495,486, titled "WriteEase Desktop System", filed on August 15, 2003, the contents of both are incorporated by reference in their entirety.

FIELD OF THE INVENTION

[0002] This invention relates generally to an ergonomic desktop, and more particularly, to an assistive desktop device and modular components that assists a user in writing, reading, and educational functions.

BACKGROUND OF THE INVENTION

[0003] Every year, schools spend millions on occupational therapy referrals. More than 50% of these referrals are for handwriting problems. Up to 20% of school children in public schools suffer from handwriting dysfunctions or disabilities that negatively impact handwriting skill acquisition and refinement. Yet, most classrooms across the country (public or private) pay little attention to the essential elements required for proper handwriting skill development. School desks are unable to adequately accommodate students and basic ergonomics are not even addressed. Education funds are then required to correct the exact problem the schools often help to create.

[0004] But the cost is not just in terms of educational budgets. Lack of effective intervention and prevention for handwriting problems costs the child and society as well. A child that is unable to effectively communicate in writing is at tremendous risk of academic failure in all areas of education, often requiring further interventions. In addition, a child who is unable to effectively master a basic communication skill such as writing is at tremendous risk of developing poor self-esteem, low self-confidence and is much more likely to fail in other aspects of his/her life, both in school and outside of school.

[0005] The cost and risks are even greater for physically or learning challenged children. These children often lack the muscular control to support the positional and postural demands necessary to work effectively in a classroom environment. Learning challenged children are also frequently plagued with physical components that impact handwriting skill (such as sensory integration dysfunction, coordination disorders and a high level of distractibility). The current interventions used do not adequately address these issues or solve the problems of how to facilitate the best possible outcome for handwriting development.

[0006] The standard school desk in U.S. elementary schools consists of an 18" x 24" horizontal writing surface with a 5" storage compartment beneath. While height can be minimally adjusted (limited by the storage compartment), the angle cannot be inclined without emptying the contents of the storage area. Moreover, currently commercially available surfaces do not follow basic ergonomic principles and can actually cause more problems than they solve by angling the writing area toward the arm without complete support for both arms.

[0007] Slant boards do not provide sufficient angles for the vast majority of users. Younger writers, who are beginning basic writing skills, benefit greater from a more inclined angle while writing. Orthopedic limitations and disabilities often benefit greatly

from a supportive angle of 20-30 degrees, sufficient to enable an upright posture while supporting large muscle groups of the arms and shoulders. For an angled writing surface to be effective, it must adequately support the writer while adhering to fundamental body ergonomics to support correct and effective fine motor skill function required in writing.

[0008] Various improvised slant boards are just large enough to accommodate writing paper, and elevates and angles the writing surface toward the writer's forearm during use. This angle is incorrectly aimed at the lower writing arm, not toward the body and is inconsistent with basic body ergonomics and does not effectively improve or facilitate fine motor skill/handwriting skill development.

[0009] It also requires the left hand be used to constantly to stabilize the slant board during use without implementing the universally preferred aspect of securing the paper with the non-writing hand. This creates a very awkward posture, angles the shoulders incorrectly and employs muscles and movements not related to or productive in generating fluid, effective handwriting movements. In addition, these slant boards usually prevent full visual access to desktop materials or classroom references.

[0010] The improvised slant boards inherent mobility on the desk surface also provides tremendous opportunity for distraction and misuse; a problem that can be exacerbated by underlying learning or physical challenges (such as ADD/ADHD, cerebral palsy, sensory integration disorder, etc.).

[0011] What is needed is a device that can be implemented every time there is writing to be done; one that will not interfere with or exacerbate other educational issues; and one that delivers results cost-effectively; and one that enhances self-esteem and self-confidence and potenciates continued academic success. Correctly angled, ergonomic writing surfaces also benefit individuals with physical conditions or limitations such as osteoporosis; arthritis; chronic neck and shoulder pain. The device angles reduce muscle

strain and enhance upright posture and positioning for greater ease and comfort when doing desk work functions.

SUMMARY OF THE INVENTION

[0012] The Assistive Desktop of the present invention advantageously overcomes the problems identified with the background art. Various embodiments include a monolithic, or one-piece, base unit design.. Alternately an articulated base unit structure may be provided that permits varying the desktop angle in accordance with a particular need. Both embodiments include modular attachments that enhance the functionality of the Assistive Desktop. These modules include, but are not limited to lighting modules, document holder modules, and storage modules.

[0013] In some of the embodiments of the Assistive Desktop System, and its Modular Components, the device provides optically clear structural design. The desktop is made from (but not limited to) plastic, phenolic, wood, or other materials that can be fabricated into the desktop of the present invention. In some embodiments the structure is fabricated from substantially clear, or translucent, plastic, including acrylic plastic, polycarbonate plastic, Delran, polyethylene, or polypropylene. Other construction may include cast resin epoxies and the like. A substantially clear, or translucent construction prevents the desktop from becoming a visual barrier or distraction and allows it to blend in with the surroundings. This can be especially important to children as they do not like to be viewed as being 'different'.

[0014] In some of the embodiments, the desktop of the present invention provides a substantially transparent, or translucent, open sided design. With a clear angled writing

surface and open sides, the user can place material beneath the entire desktop structure, on top of the horizontal plane adhered to the support structure, or secured to the back of the angled writing surface for the purposes of reference, study or tracing. It allows for use of a light module or light of user's choice for the purpose of enhanced visual performance or tracing functions.

[0015] In some of the embodiments, the device provides a substantially transparent book holder, adjustable position. By creating a removable, multi-positional book holder that is optically clear, the user has visual and positional advantages. When left in place, the book holder is not a visual barrier or distraction. It can be placed in the left, center or right positions based on the needs of the user. It can support papers, books and even compact notebook style computers and keyboards if desired.

[0016] In some of the embodiments, the device provides one or more suction and/or non-slip feet. By incorporating two securing mechanisms, the desktop can be removeably, and very securely attached to the support platform via four integrated suction attachments. If frequent repositioning is desired, the suction attachments may be removed and the integrated non-slip feet will prevent most movement generated during use. This allows the user to apply various degrees of pressure for writing or apply significant surface weight/pressure when required for postural support.

[0017] In some of the embodiments, the device is a single-piece, monolithic design. By creating a single-piece fixed unit, it eliminates the potential for hinge-related malfunction or injury. There are no pieces to play with which may distract a child. There is no need to secure any component of the desktop body prior to transport or removing from the support platform. The single-piece, monolithic design provides structural integrity, durability and a highly resistant, smooth writing surface.

[0018] In some of the embodiments, the device is an adjustable unit that allows positions to be fixed at either 20 or 30-degree angles. It also incorporates specific hinging designs that minimize potential for accidental injury or misuse and a safety chain device to prevent accidental misuse and/or injury.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] In the following detailed description of the invention reference is made to the accompanying drawings from which a part hereof, and in which are shown, by way of illustration, specific embodiments in which the invention may be practiced. These embodiments are described in sufficient detail to enable those skilled in the art to practice the invention. Other embodiments may be utilized, and structural, logical, and electrical changes may be made, without departing from the scope of the present invention.

[0020] Figure 1 is a perspective view showing one embodiment of an assistive desktop;

[0021] Figure 2 shows a detail of a bottom portion of the assistive desktop shown in Figure 1;

[0022] Figures 3a and 3b are perspective views showing one embodiment of a document holder;

[0023] Figure 4 a perspective view showing another embodiment of an enhanced book/document holder;

[0024] Figure 5 is a perspective view showing another embodiment of an assistive desktop;

[0025] Figure 6 shows a detail of a rear portion of the assistive desktop shown in Figure 5.

[0026] Figure 7 is a perspective view showing the assistive desktop in Figure 5 in an easel position; and

[0027] Figures 8-13 are views showing one embodiment of an adjustable assistive desktop.

DETAILED DESCRIPTION OF THE INVENTION

[0028] As used herein, the terms "comprises," "comprising," "includes," "including," "has," "having" or any other variation thereof, are intended to cover a non-exclusive inclusion. Further, unless expressly stated to the contrary, "or" refers to an inclusive or and not to an exclusive.

[0029] Also, use of the "a" or "an" are employed to describe elements and components of the invention. This is done merely for convenience and to give a general sense of the invention. This description should be read to include one or at least one and the singular also includes the plural unless it is obvious that it is meant otherwise.

[0030] Unless otherwise defined, all technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this invention belongs. Although methods and materials similar or equivalent to those described herein can be used in the practice or testing of the present invention, suitable methods and materials are described below. All publications, patent applications, patents, and other references mentioned herein are incorporated by reference in their entirety. In case of conflict, the present specification, including definitions, will control. In addition, the materials, methods, and examples are illustrative only and not intended to be limiting.

[0031] The different embodiments of the assistive desktops and modules allow for many configurations. In some embodiments, the angle of inclination of the desktops may be adjustable, in other embodiments it may be fixed and include one or more modular

components. Figure 1 shows one embodiment of 20-degree assistive desktop 100. The assistive desktop 100 includes a body 105 made of substantially clear, or translucent, plastic (including acrylic plastic, polycarbonate plastic, Delran, polyethylene, polypropylene or similar material) formed from a single, monolithic sheet. The body 105 includes a writing surface 110 that is angled at 20-degrees 115 towards the user. The writing surface 110 is 24" wide and 19" deep from a proximal or front edge 120 to a distal or rear edge of the rear surface 122. The body 105 incorporates a rounded acrylic molding 130 at the proximal edge 120 laminated to the writing surface 110, functioning as a utility ledge.

[0032] The body 105 includes bottom plane 135 that includes 4 key-hole machined openings 140 for the purpose of inserting 1" silicone (or similar) suction or fastening devices 145 for highly secure but removable application to a supporting surface 150 (i.e. Table, desk, etc.), see also Figure 2. There are also 4 ½" silicone bumpers 151 (or similar material) attached near the four corners of the bottom plane 135, with adhesive or other appropriate means, to prevent slipping of the desktop during use while permitting easy removal or repositioning. The bottom plane 135 also includes a machined cut-out integrated handle 155 for transport purposes. The distal plane 122 is 7" tall. The angled writing plane 110 may have slots 165 cut into the surface 110 for placement of an optional document holder module 170. Both sides 175 of the desktop 100 are completely open to provide access to the entire interior surfaces of all structural planes. These slots 165 allow for the placement of the document holder 170 to be positioned in the left, right or center positions as required by the user or removed completely. A second document holder (not shown) may also used in conjunction with document holder 170 to permit a greater work area or writing surface, or may function in the same capacity as the document holder 170 with twice the size.

[0033] In other embodiments, the body 105 may include flanged supports provided along outer edges 175 of writing plane 110 for increased planar rigidity. The body 105 may also include an extension of the writing surface via formed or laminated angled 'wings' for the purpose of providing additional stiffness to the writing plane.

[0034] One embodiment of a document holder 170 is shown in Figures 3a and 3b. The document holder 170 may be made of optically clear acrylic or similar material, also in a monolithic design. It is an angled design and measures 8" wide x 10" tall. The document holder 170 includes one or more tabs 172, sized to insert into slots 165, at a bottom rear portion of the unit. Silicone bumpers 174 (or similar material) are attached near a front portion of the document holder 170 to prevent slipping and/or frictional damage to the desktop writing surface 110 and/or document holder 170.

[0035] Figure 4 shows an embodiment of an enhanced book/document holder 270. This document holder 270 is similar in design to document holder 170 with the exception of the attachment tabs 272 being positioned near a front portion of the unit. The weight of the documents/books is placed toward the rear of the unit and rests more on the structure of the desktop. Like the document holder 170, the enhanced book/document holder 270 is also designed to be optically clear and allow multi-positional placement via the slots 165.

[0036] As disclosed above, the sides of the desktop 100 may be designed to be completely open to allow placement of materials, references and access to the back surface of the writing plane. This design element enables the use of various additional modules, such as a magnetic module; a light module; a writing guides module; and a paper-holding modules, as described below.

[0037] With access through the open sides of the body 105, a magnetic module may be used that incorporates the use of neodymium magnets application to the back and front

sides of the writing plane 110. Magnets may be attached to the back of the writing plane 110 using a removable, repositionable adhesive material; may be permanently adhered; or may be held in position using the magnetic pull of a corresponding magnet placed on the front surface of the writing plane. This permits application and usage of educational manipulatives (objects appropriate for manipulation which encourages use of fine motor muscle groups), paper securing applications and other creative or educational activities magnets can provide while being on an ergonomically inclined surface. In another embodiment, sheet steel or other magnetically attractive material may be applied to the back side of the writing plane for use with magnets on the front of the writing plane.

[0038] A lighting module may also be provided which allows for the placement of various light sources, including but not limited, to a stick-type designed light to be place behind the writing plane for the purposes of backlighting and aesthetic lighting elements. The light source may also utilize the optical elements of the acrylic material of the body 105 to light the writing plane 110 of the desktop. In another embodiment, the light source may be strips of acrylic based material to channel light from the source to various locations along various planes of the desktop units for functional or aesthetic purposes and backlighting.

[0039] A writing guide module may also be utilized with the invention. Self-adhering (e.g. stickers, self-stick or statically adhering, etc.) guides may be applied to the back surface of the writing plane. This is for the purpose of guiding paper position and placement, especially for young users or those requiring guidance for optimal paper placement and positioning. This application allows for correct placement while not limiting actual placement and not altering the smoothness of the writing plane.

[0040] A paper securing module or system may be used that incorporates the use of various suction (or similar material) clips applied to the front of the writing surface for the purpose of securing papers or other items. Because of the smooth nature of the

desktop material, suction (and similar materials) applied clips are easily placed to secure papers or other items to the surface as desired by the user.

[0041] In other embodiments, the angle of the writing surface may vary. In one embodiment, a 10-degree unit assistive desktop is identical to the 20-degree Unit assistive desktop described above with the exception of inclining the angle of the writing plane 110 is at 10-degrees rather than 20-degrees. The body 105 includes a writing surface 110 that is angled at 10-degrees 115 towards the user.

[0042] Figure 5 shows another embodiment, a 30-degree Unit of an assistive desktop 300 that may also function as an easel. The assistive desktop 300 is similar to the 20-degree assistive desktop 100 described above, with the following exceptions: inclined writing plane 310 is angled at 30-degrees (fixed, non-adjustable) toward the user; the rear plane 322 measurement is 9" tall. Key-hole machined openings 340 are done in the body 305 on the bottom plane 335 and the rear plane 322 for the purpose of inserting 1" silicone (or similar) suction or fastening devices 345 for highly secure but removable application to a supporting surface 350 (i.e. Table, desk, etc.), see also Figure 6. There are also 4 ½" silicone bumpers 351 (or similar material) attached near the four corners of the bottom plane 335 and the rear plane 322, with adhesive or other appropriate means, to prevent slipping of the desktop during use while permitting easy removal or repositioning. Figure 7 shows the 30-degree assistive desktop 300 in an easel position where the fastening devices 345 and silicon bumpers 350 are on the rear plane 322. Due to the angle of the writing surface, it may be necessary to use one of the holding mechanisms, such as the magnetic or suction modules discussed above for the purposes of securing paper to the surface. These modifications and alternate positioning provide the user with a portable angled easel surface that can incorporate all of the available optional modules described for the 20-degree assistive desktop. All modules and document holders available and

applicable for the 20-degree assistive desktop may be applied to the 30-degree assistive desktop, 10-degree assistive desktop and adjustable assistive desktops as well.

[0043] Unlike the fixed angle provided by the 10, 20 and 30-degree assistive desktops described above, an adjustable assistive desktop 400 shown in Figure 8 adjusts to various angles, such as 20 and 30 degree angles. The adjustable assistive desktop 400 was designed for the professional working with users of varied needs and abilities to determine individual optimal angle for writing surface. The adjustable assistive desktop 400 differs from the 10, 20 and 30-degree assistive desktops by the following design aspects, but is otherwise identical in structure, application and usability with optional modules and document holders:

1. Ability to adjust between 20 and 30 degree angles with extreme ease and with no mechanical twisting, turning, screwing or removable device.

2. Fixed bottom plane angle prevents unit writing plane from being able to collapse to a flat position, thereby limiting potential for accidental injury.

3. Safety chain prevents accidental over-extending of writing plane and potential misuse or over-extension of hinge mechanism.

4. Monolithic appearance is obtained by lamination of 3 planar and bent acrylic pieces.

5. 2 silicone based (or similar material) hinge materials permit movement of planes for the purposes of angle adjustment.

6. Simple adjustment was specifically designed for ease of use by those with limited hand dexterity or similar physical limitations. Adjustment from the 20 or 30-degree angle requires simply lifting the writing plane and lowering it gently down to the desired angel. To increase the angle from 20-degrees, lift the writing plane fully and place the adjustment plane in the channel guards, locking the adjustment plane into place.

7. Silicone hinge mechanism specifically designed to maintain structural integrity, ease of operation; single-piece appearance; and optically non-obstructing quality as well as esthetic qualities.

8. Hook and loop type discs on adjustment plane secure it to back side of writing plane during transport to prevent inadvertent movement of said plane.

[0044] Figures 8-13 shows details of the adjustable assistive desktop 400 that incorporates three hinged planar components; a writing plane 410, a base 435 and a elevation plane 422. The writing plane 410 and the base 435 are joined by a silicone based hinge mechanism 412 (see Figure 9) in such a way and to be visually obscure and eliminate the potential of entrapping skin or materials during operation from the users angle. A rear portion 436 of the base plane 435 and the elevation plane 422 may also joined with the same hinge mechanism 412 to allow the elevation plane 422 to be rotated to a parallel position to the rear portion 436.

[0045] Figures 8 and 10 show the adjustable assistive desktop 400 in the 20-degree angle position. In this position, the writing plane 410 rests on the rear portion 436 of the base plane 435 and the hinge 412 in a 20-degree angle position. The elevation plane 422 is in it's resting position. One or more hook and loop type discs 414 are adhered to the back side of the writing plane 410 and superior side of the elevation plane 422 wherein the elevation plane 422 may be rotated such that the discs 414 meet and hold the elevation plane 422 in a fixed position during transport.

[0046] Figures 11 and 12 show the adjustable assistive desktop 400 in the 30-degree angle position. By raising the writing plane 410 and rotating the elevation plane 422 to a parallel position to the rear portion 436, the elevation plane 422 proximal edge 423 can be secured between two guard rails 424 positioned on the back surface of the writing plane 410. This brings the writing plane 410 to a 30-degree angle. This one-touch adjustment from 20-degrees to 30-degrees is easy for even the most limited hands to obtain and was specifically designed as such.

[0047] A safety chain 475, shown in Figure 13, may be used to limit the movement and rotation of the writing plane 410 with respect to the base 435. In one embodiment, the safety chain 475 prevents the writing plane 410 from being inadvertently elevated beyond 45 degrees protecting the hinge mechanisms as well as the user from accidentally positioning the writing plane 410 such that it could fall toward the user (front).

[0048] Some of the embodiments of the assistive desktop described herein, one or more if the following features may be included: Optically clear design; Monolithic design and open access to structure; Secure attachment to supporting surface; Optically clear, multi-positional document holder; Dual use for the 30-degree unit; Ability to function as a tracing table; Ability to provide writing guides without interacting with the actual writing surface

[0049] The optically clear design of the assistive desktop is an important aspect of the invention. By creating an inclined surface that is visually transparent, environmental aspects and references are not obscured by the desktop itself. Reference materials can be placed beneath the writing surface with complete visual access through the writing surface, unlike traditional desks or other inclined work surfaces. Visual access to the surrounding environment in also not impacted for the user or nearby individuals that may need non-obstructed visual access (i.e., classroom situations).

[0050] By being optically clear, the assistive desktop maintains a low profile; blending with the environment and not attracting attention – an important feature for children and/or adults sensitive to being 'different'. This low profile is a key feature, as a user's need to 'fit in' will often influence compliance or utilization if it means standing out from others. Compliance/utilization will also be negatively impacted if a tool such as the desktop impacts the visual or functional aspects of classroom life for other students or for the teacher. By maintaining full visual access for both student(s) and teacher, inadvertent

influences in learning are minimized. With a visually transparent book holder, the book holder can be left in place without being a visual barrier for the user.

[0051] The clear design of the assistive desktop also enables other modules discussed above, to be implemented to enhance educational and application value. By permitting complete visual access to both the back and front of the writing plane and the base of the desktop; manipulatives, magnets, lights and reference materials can be accessed and utilized unlike any other inclined desktop. Visual access to all surfaces, structural components and use areas permits applications of magnetics, lighting and visual references not provided by any other angled desktop.

[0052] The single piece, monolithic design feature of the assistive desktop makes it unique from any other desktop design. The 10, 20 and 30-degree units eliminate the potential for moving parts to become a distraction in the classroom settings. It also allows for the entire elementary school desk surface to be converted into an inclined writing surface without folding, locking, elevating or other types of manipulation.

[0053] Structurally, a single piece design is less likely to have problems with fasteners, loose parts, broken components, etc. as it is formed from a single sheet of material. It is structurally sounder and durable which is especially desirable when being handled by children. By keeping the sides of the desktop open for access to the base (along with the clear design), those aspects described above in section 1 can be implemented and maximized. In addition, the open sides allow the user to utilize the area beneath the writing surface to store reference materials and utilities such as but not limited to books, papers, implements, modules, etc.

[0054] The assistive desktops disclosed incorporates two methods of securing the desktop to the supporting surface: suction and non-slip bumpers (of various materials). This enables the user to achieve very secure placement to prevent movement or

significantly limit inadvertent movement of the desktop during use. In fact, the silicone material of both the suction and bumper attachments was chosen for the way they grip to the laminated surface of the standard U.S. elementary school desk; preventing almost all movement of the desktop during normal use, while permitting easy removal and repositioning.

[0055] Optically clear, multi-positional document holders may be used with any of the assistive desktops. Because the document holder is clear, it does not need to be removed when not in use and thereby will not act as a visual barrier when not being used. The tabs that correspond to slots in the assistive desktop(s) permit the document holder to be positioned in three variations based on user needs/preferences. This is a important feature for those with physical limitations that make some positions more difficult to utilize. It is also important in order to maintain optimal postural and body positioning during use.

[0056] The dual positioning feature for the 30-degree assistive desktop allows it to function as both a fixed angle, secure writing surface as well as an easel by simple repositioning. No adjustment is required for conversion from one use to the other; simple repositioning (standing the assistive desktop on it's back on the supporting surface) is all that is necessary.

[0057] The optically clear writing surface of the assistive desktop allows it to function in many unique modes. A light positioned behind the writing plane allows it to function as a tracing table by conveying light from behind the writing plane for the purposes of tracing or similar uses while not impacting the writing surface itself.

[0058] Writing guides may be positioned behind the writing surface without interacting with the actual writing surface. Because of it's unique structural features, the desktop can

provide visual writing guides (such as those described above, but not limited to) without being applied to the writing surface itself. Guides can be adhered or applied to the back side of the writing surface without any impact on the quality or smoothness of the writing surface.

[0059] In light of prior approaches to providing an inclined writing and reading surface, the fixed, single piece, open-sided design are aspects that are initially not obvious high-value attributes. In the education of children and uniquely varied individuals however, these aspects take on particular design significance. When designing a tool for classroom use; distraction, visual and physical accessibility, ease of use, simplicity of structure and a very low visual profile are critical components that have significant impacts. Many children and/or adults who would utilize the assistive desktops described herein suffer not only from fine motor skill deficits or physical limitations that impact writing, but other educational challenges as well. Any object that could distract, limit one's vision in the classroom (or any environment), draw attention to itself or be in anyway difficult or distracting to use could limit its functionality and therefore it's benefit to the user. A tool such as the assistive desktop lends itself to fairly inconspicuous use while providing the inherent benefits to inclined and appropriately angled writing/reading surfaces. An optically clear tool such as this also lends itself to other non-obvious and educationally enhancing uses such as those previously described as well as ones generated by the creative user.

[0060] A test was conducted using a 20-degree assistive desktop in a third grade classroom. One child suffered from significant handwriting issues as evidenced by educational testing, teacher observation and a prior history of occupational therapy interventions for handwriting dysfunction. Upon implementing the assistive desktop, several observations and results occurred: the child reported that writing seemed to become easier while using the desktop; the child's teacher reported no significant

distraction for either the child or other students in the classroom; the child reported (self proclaimed) improved handwriting results; demonstrated improved handwriting output as evidenced by comparative handwriting samples taken prior to desktop use and ones taken after approx. 18 weeks of full-time, classroom use; utilization (by both teacher and student) of the design features of the assistive desktop to provide enhanced visual access to materials, even though no instruction to do so was given; the teacher reported the enhanced visual accessibility to be a positive feature of the assistive desktop; the child reported that he felt the assistive desktop was significantly improving his writing and that he felt more capable in his writing abilities; and the teacher reported that increased handwriting abilities and perceived increased self-confidence justified continued use of the desktop in the classroom.